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ART. I.—*Clinical Report on the Treatment of Phthisis by the Chlorate of Potassa.* By AUSTIN FLINT, M. D., Professor of the Principles and Practice of Medicine in the Bellevue Hospital Medical College, New York, and in the Long Island College Hospital.

At the meeting of the American Medical Association in June, 1860, the late Dr. E. J. Fountain, of Davenport, Iowa, submitted to the Section on Practical Medicine, a paper on the Treatment of Phthisis by the Chlorate of Potassa, in conjunction with Remarks on Ozone and Oxygen as Therapeutic Agents. The paper was listened to with interest, but the members of the Section declined to recommend it for publication in the *Transactions*, on the ground that, so far as the use of the chlorate of potassa in phthisis is concerned, the cases reported were few (three or four only), and the diagnosis was not based on sufficiently complete evidence afforded by physical signs. The members of the Section were unwilling that the Association should appear to sanction the introduction of a new remedy claiming to exert a special influence over phthisis, unless this claim seemed to rest on abundant facts. A resolution was, therefore, adopted referring the paper back to the author, with the request that he pursue his investigations, and report at the next meeting of the Association. This action was acceptable to Dr. Fountain, and he was earnestly engaged in pursuing further experimental researches on the effects of the chlorate of potassa, when his labours in behalf of practical medicine were suddenly arrested by his untimely death. In a conversation with him at the meeting of the Association, I promised to make the employment of this remedy in phthisis the subject of clinical observation, and to furnish him with a statement of the results. I have not been unmindful of this promise, and I propose to present in this article the facts which I have recorded, and which I should have placed at his disposal had his valuable life been spared.

After the meeting of the Association, I prescribed this remedy in several cases of phthisis at my clinic at the Long Island College Hospital. It was not convenient for me to make record of these cases, and the patients were under observation for a short period only, but the impression which I received was favourable to the utility of the remedy. On entering upon duty at the New Orleans Charity Hospital, November, 1860, I adopted the following plan: Whenever cases of phthisis were admitted into my wards, the patients were at once, or soon after admission, placed under the use of this remedy, and it was continued so long as I was satisfied that they were not losing ground. When I became satisfied that they were losing ground, the remedy, as a rule, was discontinued. While the patients were taking the chlorate of potassa, I prescribed no other remedy, excepting the syrup of morphia¹ as a palliative of cough. I excluded alcoholic stimulants when I thought I could do so with propriety, but, in some cases, I did not feel at liberty to withhold these, and they were accordingly given while the patients were taking the chlorate of potassa. In all cases the full diet of the hospital was allowed, and the patients were encouraged to be up, and to go out of doors whenever the weather and their strength permitted.

In observing the apparent effects of any remedy in patients received into hospital with phthisis, the following points are to be kept in mind. The change in certain cases will alone be sufficient for a marked improvement. This will be likely to be manifest when the comforts of a hospital are exchanged for insufficient food, miserable lodgings, and the hardships incident to drunkenness. The expectation of benefit is sometimes not without influence. On the other hand, in some cases the change is for the worse, the condition as regards diet and accommodations being inferior to that before entering the hospital; moreover, the hygienic influences of the hospital from overcrowded wards, etc., may be positively pernicious. Some persons, too, receive an unfavourable mental influence from association with the sick and dying. The characteristic mental state in phthisis, as regards sanguine hopes of recovery, leads patients to persuade themselves for a time that any remedy which they are taking is highly beneficial, and the physician must, therefore, rely upon his own observation, rather than on the patients' statements for the evidence of improvement. On the other hand, patients affected with this, as well as any other chronic malady, are apt to become tired of any remedy if continued long, and they may be led to think they are not improving by a desire for a change in treatment.

I kept records of all the cases of phthisis received into my wards (containing about forty beds) during my winter's service, extending over nearly five months. To report the cases in full, would extend this article too much, and render it needlessly tedious. I shall give a report of each case separately, but confine myself to facts sufficient to show the correctness of

¹ The syrup of morphia of the hospital contains a grain of the sulphate of morphia in an ounce of simple syrup.

the diagnosis, the amount of tuberculous deposit, the existence, or otherwise, of important complications, the general condition of the patient when admitted, and the progress of the disease while the patient was under observation, with reference to the influence of the remedy under consideration. Under the head of *remarks*, appended to each case, I shall offer such statements as a reviewal of the case may suggest. Finally, under the head of *general conclusions*, I shall present a *résumé* of certain facts, together with such inferences as a survey of the apparent results in all the cases will warrant.

CASE I. Michael Holligan, aged 50, Irishman, tanner, admitted Oct. 23, 1860.

Cough and expectoration had existed for three years. He was compelled to quit work only a month or so before his admission, but for several months he had been able to work only a portion of the day. He was accustomed to work within doors, and was much exposed to wet.

Moderate diarrhœa had existed much of the time for the preceding three years.

When admitted he was able to be up and dressed most of the day. He was considerably emaciated. The aspect was not notably morbid. He was deficient in breath on exercise. The cough was frequent and expectoration large. Appetite good. No diarrhœa. Pulse 96; respirations 20.

Physical Signs.—Flattening and diminished superior costal movement on the right side. Notable dullness on percussion between 2d and 5th rib on the right side, and well-marked cracked metal resonance. The respiration in the situation just named was broncho-cavernous, the cavernous predominating, accompanied with gurgling.

Cod-liver oil was at first prescribed, but diarrhœa occurred, and this remedy was discontinued. The bismuth was given with reference to the diarrhœa. On Nov. 3, the chlorate of potassa was prescribed, three drachms to be taken daily. Two ounces of brandy were given three times daily.

Nov. 11. The chlorate of potassa was discontinued on account of diarrhœa, and opium and tannic acid prescribed. Two days afterwards, the bismuth was substituted, and the syrup of morphia given to allay cough.

15th. No diarrhœa, and the chlorate of potassa was resumed in the same quantity as before, viz., three drachms daily.

Dec. 16. Under this date is the following record: "The treatment is continued. The patient appears to hold his own. If he fails, the failure is very gradual. He reports that he thinks he is better than when my service commenced. He is up and dressed all day. The diarrhœa of late has not been troublesome, but he complains of abdominal pain often. The abdomen is not tender to the touch. The expectoration is large, but he thinks has not increased. The appetite is tolerable. To-day, over the whole of the middle third of the right side of the chest, the respiration is bronchial, and accompanied with coarse mucous or cavernulous rales."

19th. The patient reported not so well. He complained of dyspnœa, and difficulty of expectoration. His aspect denoted failure since the date of the preceding record. The chlorate of potassa was discontinued.

24th. The patient had failed rapidly, and died on this date.

The lungs were removed for examination, and inadvertently lost. A superficial examination showed advanced tuberculosis, solidification, and

cavities. A large excavation, near the apex of the right lung, was opened in removing this lung from the chest.

Remarks.—This was certainly an unpromising case for the trial of any remedy. The pulmonary affection was extensive, far advanced, and probably complicated with intestinal tuberculosis. But for a month, while taking steadily three drachms of the chlorate of potassa daily, the failure was almost imperceptible. The patient kept up as long as possible, and when obliged to take to the bed, he sank very rapidly. We see this not infrequently in cases of pulmonary tuberculosis. Viewing this case alone, it is difficult to say how much importance belongs to the use of the remedy, or whether or not it exerted any beneficial effect. It is worthy of note, that the patient was able to take the remedy without any aggravation of the diarrhœa which had existed much of the time for three years.

CASE 2. Arthur Burns, aged 25, clerk, admitted May 3, 1860.

Two weeks before his admission he became affected with incomplete paralysis of the lower limbs. About the same time he began to cough. The paralysis of the limbs increased until he was unable to get about, and this led him to enter the hospital. Since his admission up to the commencement of my service (six months) he had kept the bed most of the time, but was able to walk about a little with the aid of a crutch and cane. Cough and expectoration had progressively increased since his admission.

When the record was commenced, Nov. 2, 1860, he was greatly emaciated and intensely anæmic. The appetite was poor, and the bowels occasionally loose. Pulse 96 and very small; respirations 12. He estimated the quantity of expectoration at about a pint daily. He kept the bed constantly.

Physical Signs.—Diminished superior costal movement and dulness on percussion at the summit, were marked on the left side. Over a circumscribed space as large as a dollar, the respiration was cavernous (the inspiration non-vesicular and low, and the expiration lower in pitch than the inspiration). Below this space the respiration was broncho-vesicular. The cavernous whisper was marked within the space in which the respiration was cavernous.

The chlorate of potassa was prescribed a week before the record was commenced. It was borne well, three drachms being given daily. Three ounces of brandy were given daily, and the syrup of morphia to allay cough.

The patient reported that he had greatly improved since this treatment was adopted, but his general appearance did not denote any improvement.

Nov. 18. The patient had evidently failed, but he daily reported better, and complained of nothing. The chlorate of potassa was continued with brandy and the syrup of morphia.

20th. Death occurred on this date. The patient continued to report better, and apparently died under the delusion that he was progressively improving. Diarrhœa was troublesome during the last few days of life, and the evacuations were frequently passed in bed.

On examination after death, at the apex of the left lung a cavity was found nearly as large as a small orange. Small deposits of softened tubercle existed in the neighborhood of the large cavity, but not enough to produce much consolidation. There were no collections of crude tubercle, and

no cavities existed near the large excavation. At the lower part of the upper lobe were two small cavities of the size of filberts. A cavity of the size of a hickory nut existed at the posterior and inferior portion of the upper lobe of the right lung. Smaller cavities, and small collections of softened tubercle existed in this lung.

The intestines presented no morbid appearances. The bladder was contracted, the lining membrane thickened, and its surface covered with bloody mucus.

Remarks.—This case also was extremely unpromising. The chlorate of potassa given for nearly a month exerted no apparent effect to retard the progressive failure of the powers of life ending in death.

CASE 3. Patriek Corley, aged 34, labourer, admitted Oct. 3, 1860.

He stated that he had had cough and expectoration for two and a half years. During this period he had received no medical treatment, and he had not quit work even for a day until he entered the hospital. He entered for dengue, which was then very prevalent. He was confined to the bed for several days with the dengue. On recovering from that affection, he found himself weak, and the cough and expectoration had increased.

When my record commenced, Nov. 5, 1860, he was up all day, and much of the time out of doors. He estimated the quantity of expectoration at half a pint daily. The aspect was pallid, but he did not appear to be much emaciated. He thought he was twenty pounds under his average weight in full health. Pulse 88; respirations 24.

Physical Signs.—Flattening at the summit of the right side of the chest, with diminished superior costal movement, and restrained elevation of the right scapula on forced breathing. Dulness on percussion at the right summit marked, the respiration broncho-vesicular, and relatively feeble.

The treatment for the month he had already been in hospital was cod-liver oil, with brandy and full diet. The cod-liver oil was discontinued Nov. 5, and three drachms of the chlorate of potassa, daily, substituted. An ounce of brandy was given three times daily, and the syrup of morphia to allay cough.

Dec. 10. The patient on this date reported that he felt well enough to leave the hospital, and undertake to work as a labourer. He stated that he had gained steadily in strength since my treatment was commenced, and that his cough and expectoration had considerably lessened. His aspect was improved, but he was still pallid. He was discharged on this date.

Remarks.—The previous history, and the physical signs in this case, show that the tuberculous deposit was of long standing, and that the affection was not progressive, but probably retrogressive. The case illustrates facts which I have repeatedly observed, viz., the cachexia may be, as it were, exhausted by a certain amount of deposit, and the disease tend intrinsically to pursue a favourable course. Although undoubtedly tuberculous for two and a half years, the patient had kept steadily at work, and the disease remained in abeyance without medical treatment. The facts illustrated by this case are to be considered in endeavouring to estimate the influence of remedies. This patient entered the hospital not for the tuberculosis, but for dengue. He was left enfeebled by the latter, and when he

had recovered the condition of health in which he was at the time of being attacked with that affection, he was as able to work as he had been previously. It may fairly be doubted whether this case furnishes evidence of any positive influence of the chlorate of potassa on the tuberculous disease.

CASE 4. Daniel McFaden, aged 22, Irishman, labourer, admitted Nov. 7, 1860.

Sixteen months before his admission he had a copious hæmoptysis. After this he was well apparently for four months, when cough commenced. Afterwards he had several attacks of hæmoptysis. He continued to work until shortly before he entered the hospital, but for some time he had not been able to perform full days' labour.

At the time of his admission he was twenty-seven pounds under his average weight in health. He was able to be up all day and out of doors. His aspect was not notably morbid; the prolabia presented a good colour. The expectoration was large. The appetite was good, and the bowels constipated. Pulse 100; respirations 32.

Physical Signs.—Diminished superior costal movement on the right side, and marked dulness on percussion. In front, on this side, the respiration almost inappreciable and accompanied by subcrepitant rales; behind the respiration broncho-vesicular.

Half an ounce of the chlorate of potassa daily was prescribed, and the syrup of morphia.

Dec. 2. Under this date the following record was made: "This patient of late has daily reported an increase of cough and expectoration, and decrease of strength. He states to-day that he has lost eight pounds since he entered the hospital. He has evidently lost ground, although he is still up and about all day. Concluding, therefore, that I cannot conscientiously continue longer the chlorate of potassa treatment, I have to-day directed its discontinuance, and have prescribed half an ounce of the cod-liver oil, and an ounce and a half of brandy, three times daily."

3d. The patient desired to leave the hospital, and was discharged.

Remarks.—In this case the amount of tuberculous deposit was not very large, and there was no important complication. The chlorate of potassa, which, with the syrup of morphia, constituted the treatment for nearly a month, half an ounce being given daily, failed to prevent an increase of the cough and expectoration, with progressive failure of strength, and the patient was sufficiently discouraged to request a discharge from the hospital.

CASE 5. Timothy Ford, aged 45, Irishman, labourer, admitted Nov. 6, 1860.

A year before his admission he had an attack of hæmoptysis, but he had no cough, and was apparently in good health, until March or April, 1860. He continued to labour until July, and was then obliged to quit work on account of weakness.

At the time of his admission he was up all day and able to be out of doors. The quantity of expectoration was considerable. The appetite was tolerable. The bowels were constipated. Pulse 100, small and feeble; respirations 28.

Physical Signs.—Diminished superior costal movements on the right side, and notable dulness on percussion in the infra-clavicular region. The

respiration in this region extremely feeble, and accompanied by mucous rales. Vocal resonance intense in this region, and feeble on the left side. Bronchial whisper more acute than on the left side. Behind, relative dullness over the right scapula; the respiration inappreciable in the upper scapular, and broncho-vesicular in the lower scapular region. Equal resonance and respiration below the scapulae on the two sides.

Treatment.—Half an ounce of the chlorate of potassa daily, and the syrup of morphia *pro re nata*.

Nov. 20. The patient desired to leave the hospital, and was discharged on this date.

He reported on this date that for two or three days the cough and expectoration had been less than usual. His condition, however, when discharged appeared to be about the same as when admitted.

Remarks.—The chlorate of potassa given to the extent of half an ounce daily in this case for fourteen days, constituted, with the syrup of morphia, the whole medical treatment. It exerted no marked influence on the pulmonary symptoms, or the general condition.

CASE 6. Silas Worden, American, plasterer, aged 41, admitted Nov. 13, 1860.

He had good health up to July, 1860. He was then attacked with an acute affection which was called swamp fever, and confined to the bed for several weeks. He recovered sufficiently to go to work, and was then seized with the dengue. After recovering from this affection he was attacked with intermittent fever, which was arrested after three paroxysms. About eight weeks before his admission he began to cough. The cough was at first slight and the expectoration small. These symptoms increased, and he lost, progressively, strength and flesh until he was too weak to work, and came to the hospital. He had a slight hæmoptysis three weeks before his admission.

At the time of his admission he was able to be up all day and out of doors. The appetite was good and the bowels regular. He was thin but not notably emaciated. The aspect was pallid. The pulse was 100, small and feeble; the respirations, 24.

Physical Signs.—Diminished superior costal movements on the left side. Marked dullness on percussion at the left summit in front and behind; the respiration broncho-vesicular, approaching the bronchial, the voice somewhat bronchophonic, and the bronchial whisper notably intense and acute.

Treatment.—Half an ounce of the chlorate of potassa daily, and the syrup of morphia *pro re nata*.

Dec. 3. The patient had shortly prior to this date a slight hæmoptysis. The cough and expectoration were increased. He had lost in weight and was more anæmic than on the previous date.

The treatment was continued.

10th. The patient complained of profuse sweating at night. Treatment continued.

22d. The increase in the pulmonary symptoms and the loss in weight and strength were such that I did not feel warranted in continuing longer the chlorate of potassa treatment, and it was on this date discontinued. Cod-liver oil and brandy were prescribed. The patient was still able to be up all day.

Feb. 8, 1861. The patient steadily declined after the preceding date and died on this day.

On examination after death the left lung was found to contain, near the apex, a cavity as large as an English walnut, and the upper and middle lobes were solidified by tuberculous deposit. A small cavity existed at the apex of the right lung, with considerable tuberculous solidification in the upper third of this lung.

Remarks.—The chlorate of potassa treatment was commenced in this case eight weeks after the occurrence of cough denoted the deposit of tubercle. The deposit was abundant when this treatment was commenced. The treatment was continued for six weeks and then abandoned in consequence of the steady progress of the disease and with loss of strength and weight during that period.

CASE 7. Hugh Ramsey, Scotchman, aged 31, bookkeeper, admitted Nov. 19, 1860.

In January, 1860, he had measles, and had not been free from cough since that time. In the month of March, 1860, he had slight hæmoptysis, recurring two or three times. The voice had been constantly husky for five or six weeks. He had recently come to New Orleans from Winchester, Virginia.

At the time of his admission he was thirty-four pounds below his average weight in health. He had left the bed for several days. The appetite was good. No diarrhœa. Pulse 96; respirations 32. The expectoration was copious.

Physical Signs.—Moderate relative dulness on percussion at summit of left side, in front and behind; the respiration broncho-vesicular; the voice bronchophonic, and the bronchial whisper intense and acute.

Treatment.—Half an ounce of the chlorate of potassa daily, with the syrup of morphia *pro re nata*.

Nov. 29. The patient was discharged at his request, being desirous to get to some friends in Maryland. During his stay in the hospital, the cough and expectoration diminished, and his appearance denoted improvement. The voice remained the same.

Remarks.—This case was under observation for ten days only. The condition of the patient was improved, but how far the improvement was due to the chlorate of potassa, irrespective of the influence of rest and change of climate, it is difficult to say.

CASE 8. James Ryan, aged about 21, labourer, admitted Dec. 8, 1860.

Cough had existed for a year. He continued to work up to November, and was then obliged to quit work on account of weakness and want of breath. He had lost considerably in weight.

On admission he was able to be up all day and out of doors. The expectoration was pretty large. The pulse was 64; the respirations 20. He had diarrhœa, which had existed for two days only.

Physical Signs.—Diminished superior costal movements on left side, and elevation movement of left scapula on forced breathing restrained. In front, at summit of left side, the percussion sound vesiculo-tympanic. Distinct dulness over left scapula. Vocal resonance greater at the left than

at the right summit. The voice over the left scapula slightly bronchophonic.

Treatment.—The oxide of bismuth was at first prescribed for diarrhœa, and this symptom being relieved, half an ounce of the chlorate of potassa *per diem* was prescribed Nov. 10, with the syrup of morphia *pro re nata*.

Dec. 29. A slight hæmoptysis occurred. The treatment was continued.

Jan. 1, 1861. The patient having complained of late of an increase of the cough and expectoration, and reporting that he felt progressively weaker, the chlorate of potassa was suspended, and half an ounce of cod-liver oil, with an ounce of brandy, three times daily, prescribed.

9th. A small hæmoptysis occurred. The cod-liver oil and brandy were continued.

Feb. 11. The patient for some days had reported not so well—more cough and expectoration, and greater debility. The general appearance did not show deterioration, and he continued to be up all day and out of doors. On repeated examinations of the chest, no evidence of an increase of the deposit of tubercle was obtained.

On this date the chlorate of potassa was resumed, half an ounce daily, and the brandy continued.

March 11. The patient reported that he felt well enough to go out, and undertake to work. He was accordingly discharged. The chlorate of potassa was continued up to the date of his discharge. He stated that the cough and expectoration were, at least, one-fourth less than when he entered, and his strength about the same as at that time. The physical signs showed no increase of the deposit during his stay in hospital.

Remarks.—The chlorate of potassa was given in this case for three weeks; cod-liver oil and brandy then constituted the treatment for six weeks, and for the remaining four weeks, up to the date of his discharge, the chlorate of potassa was resumed. The improvement occurred during the latter period, and in connection with this fact the change of season is to be considered, the weather having become warm. Moreover, the ward was not as crowded as during the two former periods.

It is also to be considered that, after resuming the chlorate of potassa, the brandy was continued, which was not given during the first period. In view of these circumstances, it is difficult to judge of the agency of the chlorate of potassa in the improvement.

CASE 9. John Cock, aged 33, cooper, German, admitted Dec. 17, 1860.

Cough had existed for about twenty weeks. He had lost, as he thinks, thirty pounds in weight during this period.

At the time of his admission, he was able to be up and dressed all day, but he was pallid, emaciated, and appeared to be quite feeble. The pulse was 56 and very small. The respirations were not accelerated. Appetite poor. Bowels constipated.

Physical Signs.—Deficient superior costal movement on the left side of the chest, with notable dullness on percussion, and broncho-vesicular respiration, approaching to bronchial, exaggerated bronchial whisper, and the vocal resonance and fremitus greater than on the right side.

Treatment.—Half an ounce of the chlorate of potassa daily, with syrup of morphia *pro re nata*.

Dec. 29. The cough and expectoration had somewhat diminished, but

he had not improved in appetite and strength. The chlorate of potassa was continued, and an ounce of brandy, three times daily, added.

Jan. 10, 1861. The patient had declined in strength, and now kept the bed constantly. The pulse was extremely feeble. The expectoration of late had been abundant and purulent. The cavernous respiration and whisper were marked in the left infra-clavicular region, over a space covered by the pectoral extremity of Cammann's stethoscope.

The chlorate of potassa was continued, with brandy every four hours.

Death occurred January 11.

On examination after death, a large cavity was found at the upper part of the left lung, and in the vicinity crude tubercle existed in abundance. A few small collections of softened tubercle were observed. The upper lobe of the right lung was crammed with tubercles, not aggregated into masses, nor softened, and no cavities.

Remarks.—In this case the chlorate of potassa, given during the time the case was under observation (twenty-four days), did not prevent the rapid progress of the disease, and its fatal termination. During this time the tuberculous affection in the left lung eventuated in the formation of a large cavity, and a fresh deposition of a large amount of tubercle took place.

CASE 10. James Burns, Swede, aged 36, labourer, admitted Jan. 2, 1861.

Cough had existed for four months. He was obliged to quit work three weeks before his admission, on account of weakness and deficiency of breath.

At the time of his admission, he was able to be up all day and out of doors. His aspect was not notably morbid. He was moderately anæmic. The pulse was 100 and small; the respirations 24. He was twenty-five pounds below his average weight in health. The appetite was good; the bowels constipated.

Physical Signs.—Depression at the summit on the right side; diminished superior costal movements on that side, with notable dullness on percussion; broncho-vesicular respiration; the vocal resonance and bronchial whisper more intense than on the right side.

Treatment.—Half an ounce of the chlorate of potassa daily, and the syrup of morphia *pro re nata*.

Jan. 17. The patient reported that the cough and expectoration were about the same as when he entered, but that he had failed as regards appetite and strength. It was apparent that he had lost ground, and on this date the chlorate of potassa was discontinued, cod-liver oil and brandy being substituted.

22d. Physical signs showed marked increase in the amount of tuberculous deposit, and the existence of a cavity in the upper part of the right lung.

Death occurred February 1.

On examination after death, a tuberculous cavity was found at the apex of the left lung, nearly as large as a medium sized orange. The whole of the right lung was solidified with crude tubercle. The left lung contained a cavity as large as an English walnut, and portions of the upper lobe were solidified with crude tubercle.

Remarks.—The chlorate of potassa in this case, given for fifteen days, did not prevent the rapid progress of the tuberculous affection, nor a fresh deposition of tubercle, ending in death on the twenty-ninth day after admission.

CASE 11. Edward Flynn, aged 28, Irishman, labourer, admitted Dec. 25, 1860.

A copious hæmoptysis occurred a year before his admission. Two months after this, cough and expectoration became prominent symptoms, and he was obliged to quit work seven months before his admission.

At the time of his admission, he was able to be up all day and out of doors. He thought he was twenty-five or thirty pounds below his average weight in health. He presented an emaciated appearance, and was notably anæmic. The appetite was poor. The expectoration was not large. The pulse was 120, and quite small; the respirations 36.

Physical Signs.—Notable depression at the right summit, and dulness on percussion; a feeble broncho-vesicular respiration in front, accompanied by subcrepitant rale; behind, in lower scapular region, the respiration nearly bronchial; the vocal resonance intense in front.

Treatment.—Half an ounce of the chlorate of potassa daily, and syrup of morphia *pro re nata*. An ounce of brandy three times daily was also given.

Jan. 21. The patient was discharged at his request. The cough and expectoration had increased since his admission, and he had failed as regards strength. His general appearance was worse, and I have noted, in connection with the history of the case, that had he remained in hospital I should have discontinued the chlorate of potassa at the date of his discharge.

Remarks.—The chlorate of potassa, given in this case for nearly four weeks, failed to produce any improvement.

CASE 12. Gottlieb Knaonar, German, butcher, aged 42, admitted Dec. 25, 1860.

Cough and expectoration had existed for thirteen months. Hæmoptysis had occurred. In other respects the previous history was imperfectly obtained.

At the time of his admission he kept the bed, and complained much of pain in the right side. I insisted upon his getting up, and in a short time he remained up all day, and was soon able to act as an assistant to the ward nurse. The pulse was 112; respirations 32. The expectoration was small. The aspect was not notably morbid. The appetite was good.

Physical Signs.—Dulness on percussion marked in the right infra-clavicular and lower scapular regions; broncho-vesicular respiration approximating to the bronchial in these regions, and bronchophony.

Treatment.—Chlorate of potassa, half an ounce daily, was prescribed Jan. 1, 1861, and an ounce of brandy three times daily.

Jan. 28. The following is the record under this date: "On this day the chlorate of potassa is discontinued and cod-liver oil, half an ounce three times daily, substituted, the brandy being continued. The patient for some time has complained of an increase of the cough and expectoration, and of loss of strength. He is evidently not improving, if he be not losing ground. He states that he has formerly been benefited by the cod-liver oil. Under these circumstances, having concluded that I have given the chlorate of potassa a fair trial, I have changed the treatment."

Feb. 17. The patient reported better, and appeared to have improved since the foregoing date. The cough and expectoration had diminished, and he had more strength. The cod-liver oil and brandy were continued.

28th. The improvement was marked, and the patient had undertaken to discharge the duties of nurse in another ward.

Remarks.—The chlorate of potassa in this case, continued for twenty-eight days, produced no improvement. Subsequently, improvement was marked under the use of cod-liver oil. To the history of this case I have appended, in my hospital book, the following note: "The improvement in this case, it is to be considered, has been since the warm weather enabled patients to be out of doors, and secured for the wards free ventilation, the hospital, moreover, being less crowded."

CASE 13. Nelson Rasford, American, calker and carpenter, aged 37, admitted Dec. 26, 1860.

Cough had existed for five months. Hæmoptysis occurred a month before his admission. He had not worked for five months, and had been in a hospital at Smithland, Ky., for three months.

At the time of his admission he was able to be up all day and out of doors. He was thirty pounds under his average weight in health. The expectoration was abundant. He had diarrhœa, which had existed for a fortnight.

Physical Signs.—Dulness on percussion at the summit of the right side, in front and behind; the respiration broncho-vesicular; the bronchial whisper notably louder and more acute than on the left side, and the vocal resonance intense, but no bronchophony.

Treatment.—The oxide of bismuth was given for three days, with reference to the diarrhœa, which then ceased.

Dec. 30. Half an ounce of the chlorate of potassa daily was prescribed, and half an ounce of brandy three times *per diem*, with syrup of morphia *pro re nata*.

Jan. 19, 1861. The patient desired to leave the hospital, and was discharged. He proposed to try to do some light work. During his stay in hospital he had two attacks of hæmoptysis, the quantity of blood raised with each attack being small.

As regards his condition when discharged in comparison with his condition when he entered, the expectoration was about the same in amount, and he appeared to have neither lost nor gained in strength.

Remarks.—There was certainly no improvement in this case during the twenty days that the chlorate of potassa treatment was pursued.

CASE 14. Michael Murray, aged 27, hostler, admitted Dec. 3, 1860.

Cough had existed for three months. During this time he had lost moderately in weight, and considerably in strength.

At the time of his admission he was pallid and quite weak, but was able to be up all day and out of doors.

Physical Signs.—Distinct dulness on percussion at the summit of the left side of the chest, in front and behind; broncho-vesicular respiration; the bronchial whisper more intense as well as more acute than on the right side, and the vocal resonance slightly greater than on the right side.

Treatment.—Half an ounce of the chlorate of potassa daily.

Feb. 3, 1861. On this date the patient reported well enough to leave the hospital, and was discharged. The improvement had been progressive and was marked. The cough and expectoration were diminished one-half. He

appeared to have gained in weight. He was less pallid. The appetite and digestion were good. The physical signs were the same when discharged as when he was admitted.

Remarks.—The chlorate of potassa in this case was given for two months, and was the only remedy given. Under this treatment there was no evidence of progress of the tuberculous affection, and the improvement in all respects was striking, the patient recovering sufficient strength to feel able to return to labour.

General Conclusions.—It will not be questioned that the value of this or any remedy, in the treatment of this or any disease, is to be determined by experience. The only questions are, what are the conclusions to be drawn from experience, and how are they to be obtained? If the treatment of cases of phthisis by the chlorate of potassa be followed by recovery, or improvement, not attributable to other agencies, nor to the intrinsic tendencies of the disease, this remedy has a certain value. The degree of value is according to the ratio of cases in which it exerts a remedial influence, the proportion of instances in which it conduces to recovery, and the amount of improvement due to it when patients do not recover. Collections of cases in which the treatment consisted chiefly, or exclusively, in the employment of this remedy, contain the data for determining its value. A few cases are not sufficient, for it is certain that phthisis does not always tend intrinsically to a fatal result, but in some instances ends spontaneously in recovery. I have sufficient evidence of the correctness of this statement. Moreover, not very infrequently patients affected with phthisis remain for a long period in a condition nearly or quite stationary, the affection not progressing, and no fresh deposition of tubercle taking place, when this condition is not dependent on the influence of any remedy. I have records of cases which warrant this statement. In determining the value of this, or any remedy, therefore, the number of cases collected must be sufficient to make fair allowance for the facts just stated.

The cases should be recorded. To carry in the mind all the important facts, in a series of cases, having reference to the value of a remedial agent, is simply an impossibility. I do not mean to be understood as saying that the conclusions drawn from unrecorded experience are worthless. They are entitled to more or less weight, according to the estimate which we may place on the mental capacity and candour of those who communicate them, and the confidence which we may feel in our own faculties when the conclusions are our own. Therapeutical doctrines have always been, and must for a long period to come continue to be, to a greater or less extent, based on this kind of experience, when they are not purely theoretical, because the results of a better experience are acquired very slowly. This better experience consists in the deductions legitimately drawn from care-

fully recorded cases. In this way only can facts be accumulated in sufficient number for analytical investigation, and in this way only are the errors arising from preconceptions and hasty generalizations to be avoided.

The fourteen cases of phthisis now reported, were all that came under observation in my wards in the Charity Hospital during my last winter's service. I recorded these cases with express reference to the study of the influence of the chlorate of potassa on the disease, and, as already stated, I had previously been led to entertain the expectation that this remedy would be found to be valuable, from the cases reported by the late Dr. Fountain, and from having prescribed it in a few cases which were not recorded. In each of these fourteen cases the physical signs and symptoms afforded ample evidence of the existence of the disease. In five of the cases the disease proved fatal in the hospital, and the correctness of the diagnosis was confirmed by examinations after death.

The tuberculous disease had existed for some time in all the cases, and in most of the cases for a considerable period. This is a point to be considered. The question may fairly be raised, whether the results might not have been different in a series of cases in which the remedy was earlier employed. The facts with regard to the duration of the disease before the patients came under my observation are as follows: In one case it had existed over 3 years; in one case over 2 years; in three cases 1 year or over; in four cases 6 months or over; in two cases 5 months; in one case 3 months, and in two cases 2 months. In one of the two cases in which the disease had existed for only two months, the remedy was continued for six weeks without improvement, and then discontinued. This case ended fatally three months after the date of admission.

The quantity of tuberculous deposit is another point to be considered. In one of the cases only was the amount small. It was abundant in all the remainder, and in several cases it was large. The quantity of deposit may be considered as a criterion of the intensity of the cachexia, and in proportion to the quantity is the damage which the lungs sustain and the difficulty of recovery. It is therefore reasonable that in a series of cases in which a small deposit existed a remedy might be found to be efficient, which would be incompetent to effect a cure when the deposit is large.

Complications are of importance. For example, a coexisting tuberculous affection of the intestines diminishes the chances of recovery or improvement. This complication existed in one of the fatal cases. In another fatal case the patient had incomplete paraplegia and cystitis. In the other cases no important complications existed.

The condition of patients with this disease as regards muscular strength, is important with reference to the prospect of recovery or improvement. These cases differed in this regard, but in all the cases save one, the patients, when they came under my charge, were able to be up, either the whole or the greater part of the day, and to go out of doors.

The chlorate of potassa was given in most of the cases for several weeks. To be more precise, it was given for about a month in 6 cases; for two months in 1 case; for seven weeks in 1 case; for six weeks in 1 case; for twenty-four days in 1 case; for three weeks in 1 case; for two weeks in 1 case, and in one case for only ten days. The quantity given in the three first cases was three drachms, and in all the remaining cases half an ounce daily. A fresh solution was prepared each day and drank during the day. In all the cases the remedy was borne without inconvenience. It did not occasion diarrhœa nor any other unpleasant symptoms, and the patients did not seem to acquire a repugnance to it. In all the cases, while the treatment by this remedy was continued, other medicines were not given excepting the syrup of morphia as a palliative for cough, and in seven of the cases a small quantity of brandy.

Now, surveying these cases, what general conclusions are to be drawn respecting the influence of the remedy on the disease? In *nine* of the fourteen cases there are no grounds for supposing that the remedy exerted any salutary influence. In six of these nine cases the disease steadily advanced to a fatal issue, the patients dying in hospital. The histories of most of the fatal cases show that the remedy did not prevent the progress of softening, the formation of cavities, nor the fresh deposition of tubercle.

In *five* cases, a comparison of the condition of the patients before and after the use of the remedy, affords grounds for the supposition that the remedy may have exerted a salutary influence on the disease. These cases are Nos. 1, 3, 7, 8, 14. Reverting to these cases severally, in Case No. 1 the patient for a month, while taking the remedy, appeared to hold his own. He began, however, to fail rapidly while taking the remedy, so that it was discontinued five days before death. The evidence of the value of the remedy afforded by this case is certainly not strong.

In Case No. 3 the tuberculous disease had been of long standing, and was probably not progressive when the patient was admitted. He entered the hospital with dengue, and recovered from this affection with the tuberculous disease as it was previously. This case certainly affords no positive evidence of any influence exerted by the remedy on the tuberculous disease.

Case No. 7 was under observation only for ten days. The patient entered just after journeying from Virginia to New Orleans. He improved during his brief stay in the hospital, but there is at least as much ground for supposing that the improvement was due to rest and the change of climate as to the chlorate of potassa.

In Case No. 8 the chlorate of potassa was given for three weeks, and then discontinued in consequence of the want of evidence of improvement. Subsequently the remedy was resumed and continued for three weeks, and during this period the improvement was marked. In the mean time, however, the weather had become mild, and the sanitary condition of the hospital was improved by fewer inmates and freer ventilation. These circum-

stances render it doubtful whether much, if any, influence was exerted by the remedy.

In Case No. 14 improvement was more marked than in any of the other cases. This was the only case in which the quantity of tuberculous deposit was small. The disease had existed for three months only. The chlorate of potassa was the only remedy given in this case, and it was given during the whole time the patient was in hospital, viz., two months. The only question in this case is, whether the improvement was due to the intrinsic tendency of the disease, together with the salutary influences of the hospital and season, or whether it was attributable, in part or exclusively, to the remedy.

In view of the facts presented in this report, the following conclusions are submitted :—

1. Of fourteen recorded cases of phthisis in which the chlorate of potassa was given in sufficient doses (\mathfrak{zss} *per diem* in eleven, and \mathfrak{zij} *per diem* in three cases), and for a sufficient period to test its remedial power, in nine the histories afford no evidence of any salutary influence from the remedy ; in four cases the circumstances render it doubtful whether much, if any, influence was fairly attributable to the remedy, and in one case only is there room for the supposition that the remedy was highly beneficial. These cases, therefore, fail to furnish proof of any special efficacy in this remedy to arrest or retard the progress of the disease.

2. Inasmuch as in all these cases, save one, the quantity of tuberculous deposit was large or abundant, and in nearly all the disease had existed for a considerable period, it remains to be ascertained by further clinical researches whether different results may not be obtained by the use of the remedy in a series of cases in which the quantity of deposit is small and the previous duration of the disease short. In collecting such cases, accuracy of diagnosis is, of course, essential, and this can only be secured by the evidence afforded by physical signs in conjunction with the previous history and present symptoms.¹ It may be added, in arriving at the conclusion that this remedy possesses no special influence in phthisis, it does not follow that it is not in a certain number of cases useful. By a special influence is meant a power to control, to a greater or less extent, the pathological processes which belong to this disease ; a remedy may fail to do this, and yet be beneficial, as are a diversity of tonic remedies in cases of phthisis.

3. The chlorate of potassa may be given in cases of phthisis to the extent of half an ounce *per diem*, with entire impunity, and without occasioning any unpleasant symptoms. It does not produce diarrhœa, and may be well borne when diarrhœa is present in cases of phthisis.

¹ Case No. 6 is an instance, already referred to, in which the remedy was commenced two months after the commencement of the disease, and continued without improvement for six weeks.